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10/569,230

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11/03/2009

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EXAMINER

LAU, JONATHAN S

ART UNIT

PAPER NUMBER

1623

NOTIFICATION DATE

DELIVERY MODE

11/03/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentmail@whda.com

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/569,230 | Applicant(s) TAJIRI ET AL. | |
| | Examiner Jonathan S. Lau | Art Unit 1623 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-13 is/are pending in the application.
- 4a) Of the above claim(s) 8-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2 pgs / 21 Aug 2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 Aug 2009 has been entered.

This Office Action is responsive to Applicant's Amendment and Remarks, filed 21 Aug 2009.

This application is the national stage entry of PCT/JP04/12219, filed 19 Aug 2004; and claims benefit of foreign priority document JP 2003-301124, filed 26 Aug 2003; currently an English language translation of this foreign priority document has not been made of record.

Claims 1 and 3-13 are pending in the current application. Claims 8-13, drawn to non-elected inventions, are withdrawn. Claims 1 and 3-7 are examined on the merits herein.

Rejections Withdrawn

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Applicant's Remarks, filed 21 Aug 2009, with respect to claims 1 and 3-7 rejected under 35 U.S.C. 103(a) as being unpatentable over Osaka Gas Co., Ltd. (Foreign Patent Publication JP 2002-173689, published 21 June 2002, provided by Applicant in IDS mailed 23 Feb 2006), JP '689 herein, in view of Harihara et al. (US Patent Application Publication US 2002/0114126, published 22 Aug 2002, of record) has been fully considered and is persuasive, as Harihara et al. is drawn to fully carbonized activated carbon, a different material than activated hydrocarbon material of JP '689 and the instant invention, and the prior art of record does not provide reasonable expectation of success in combining the teaching regarding the fully carbonized activated carbon of Harihara et al. with the activated hydrocarbon material of JP '689.

This rejection has been **withdrawn**.

The following are new grounds of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osaka Gas Co., Ltd. (Foreign Patent Publication JP 2002-173689, published 21 June 2002, provided by Applicant in IDS mailed 23 Feb 2006), JP '689 herein, in view of JP '044 (Foreign Patent Publication JP 2001-274044, published 05 Oct 2001, provided by Applicant in IDS mailed 23 Feb 2006) and in view of Yata et al. (US Patent 4,753,717, issued 28 Jun 1988, cited in PTO-892) and further in view of Kirk-Othmer (Kirk-Othmer Encyclopedia of Chemical Technology, p1-45, cited in PTO-892). As the publication JP '689 is in Japanese the English-language machine translation is provided (machine translation of JP 2002-173689, of record), and references to JP '689 will be found therein. As the publication JP '044 is in Japanese the English-language machine translation is provided (machine translation of JP 2001-274044, cited in PTO-892), and references to JP '044 will be found therein.

JP '689 teaches a hydrocarbon material with electrical conductivity useful in the electronics industry (page 1, paragraphs 1-2) made from a cellulose-based material such as coconuts or wood flour (page 2, paragraph 9 and page 3, paragraph 14). JP '689 teaches the raw material with a thermal reaction assistant such as zinc chloride added (page 4, paragraph 21). JP '689 teaches a hydrocarbon material made by thermal reaction, or heat-treating, to give a hydrogen/carbon atomic ratio of 0.05 to 0.5

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(page 5, paragraph 25). JP '689 teaches the hydrocarbon material has a specific surface area measured by the BET method of 1800-3000 m²/g (page 5, paragraph 29). JP '689 teaches the hydrocarbon material has an 8-12 angstrom pore volume determined by the MP method of preferably 0.2-0.8 ml/g (page 6, paragraph 30). The oxygen concentration of a polysaccharide-based material such as wood floor has an empirical formula of CH₂O, or an oxygen concentration of 25% by atomic ratio, or approximately 53% by weight. JP '689 teaches a hydrocarbon material having an oxygen density of 28.1% by weight (page 8, paragraph 48), 26.4% by weight (page 8, paragraph 51), and 18.6% by weight, (page 8, paragraph 53), implicitly teaching the deoxygenation of the polysaccharide-based raw material according to instant claim 3. JP '689 teaches the oxygen density of the raw material is 20% by weight or more and teaches when the oxygen density is too low the desired performance of the product is hard to obtain (page 4, paragraph 19).

JP '689 does not specifically teach a mesopore volume, measured by the BJH method, of 0.02 to 1.2 ml/g (instant claim 1). JP '689 does not specifically teach a bulk density of 0.60 g/mL or higher for an electrode obtained using the hydrocarbon material (instant claim 1).

JP '044 teaches teaches an activated hydrocarbon material made in a manner similar to JP '689 (translated paragraph 51, provided by Applicant in IDS mailed 21 Aug 2009), is expected to possess pore volume from both mesopores as measured by the BJH method of 0.4 or less ml/g and a pores measured by the MP method of 0.4 or more ml/g (page 9, paragraphs 35-37).

Yata et al. teaches a polyacene skeletal structure having open pores and being a heat-treated product of an aromatic condensation polymer containing carbon, hydrogen and oxygen (abstract), or an activated hydrocarbon material, wherein said material is optimized to have an average pore diameter of 10 to 0.03 micrometers and an apparent density of 0.3 to 0.7 g/cm³ (column 6, lines 10-30). Yata et al. teaches the embodiment having an apparent density of 0.6 g/cm³ (column 19, lines 55-70).

Kirk-Othmer teaches bulk density is a property of a particulate system including particles and the medium they are contained within, not an inherent property of a material such as material density, and teaches bulk density depends on the method of packing and a system of packed particles can become denser with time and settling process to a limiting value (page 5, section 2.2. Particle Properties, paragraphs 1-2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine JP '689 in view of JP '044 and in view of Yata et al. and further in view of Kirk-Othmer. All of JP '689, JP '044 and Yata et al. are in the field of an activated hydrocarbon material containing a polycyclic aromatic system. Kirk-Othmer is relied on to teach what is well known to one of the level of ordinary skill in the art. JP '689 teaches a total pore volume. JP '044 teaches an activated hydrocarbon material made in a manner similar to JP '689 is expected to possess pores in both the mesopore size and larger pore size. Yata et al. teaches it is known in the art to optimize the size of pores of the activated hydrocarbon material and implicitly teaches pore size is an average value and therefore expected to exist as a distribution of pore sizes. JP '689 teaches the oxygen density of the raw material is 20% by weight or more and teaches

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when the oxygen density is too low the desired performance of the product is hard to obtain, providing guidance for one of ordinary skill in the art to optimize the obtained product by performing routine experimentation by using a raw material having an increased oxygen density. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists, and generally differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical, see MPEP 2144.05.

The limitation "a bulk density of 0.60 g/ml or higher for an electrode obtained using the hydrocarbon material" is interpreted as a intended use of the claimed hydrocarbon material, and it is found that the material taught by JP '689 is capable of being used in an electrode having a bulk density of 0.60 g/ml or higher. As taught by Kirk-Othmer, bulk density is a property of a particulate system, not an inherent property of a material, and bulk density depends on the method of packing and a system of packed particles can become denser with time and settling process.

Instant claim 6 recites limitations of the starch-based material, but does not require the polysaccharide-based raw material to be said starch-based material, therefore a hydrocarbon material prepared from a cellulose-based raw material makes obvious instant claim 6.

Response to Applicant's Remarks:

Applicant's Remarks, filed 05 Mar 2009 and 21 Aug 2009, have been fully considered and not found to be persuasive.

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Applicant provides as evidence JP '044 (Foreign Patent Publication JP 2001-274044) showing an electrode made of hydrocarbon material having a bulk density of less than 0.60 g/ml. However, as taught by Kirk-Othmer, bulk density is a property of a particulate system including particles and the medium they are contained within, not an inherent property of a material. Yata et al. teaches activated hydrocarbon material can have an apparent density as large as 0.7 g/cm³. Therefore it is reasonable to find that the material taught by JP '689 is capable of being used in an electrode having a bulk density of 0.60 g/ml or higher. Applicant's showing of evidence that hydrocarbon material is capable of being used in an electrode having a bulk density of less than 0.60 g/ml is not persuasive that material taught by JP '689 is not capable of being used in an electrode having a bulk density of 0.60 g/ml or higher.

In Applicant's Remarks, filed 05 Mar 2009, Applicant previously identifies evidence provided in the instantly filed specification that purports to show unexpectedly advantageous properties, such as specific capacitance per unit volume and per unit weight of an electrode made of the instant hydrocarbon material. However, this evidence is not commensurate in scope with the claimed material because these properties are drawn to the electrode made using the instant hydrocarbon material. As provided in Yata et al. it is known in the art that such hydrocarbon material may be used as filters and for separations of bacteria or colloidal particles (Yata et al. column 6, lines 20-25). Further, as taught by Kirk-Othmer, bulk density is a property of a particulate system including particles and the medium they are contained within, not an inherent property of a material, therefore the provided evidence are drawn to an electrode made

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of the instant hydrocarbon material according to specific structural limitations.

Therefore said properties are drawn to an electrode made of the said hydrocarbon material, and not commensurate in scope with the hydrocarbon material which in itself does not require the specific structural limitations of an electrode made of said material.

Conclusion

No claim is found to be allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan S. Lau whose telephone number is 571-270-3531. The examiner can normally be reached on Monday - Thursday, 9 am - 4 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Anna Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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